

**2014
UTAH BOARD OF OIL, GAS AND MINING
EARTH DAY AWARDS**

Nomination Form

Nominee Information

Company Name: Canyon Fuel Company-Sufco Mine, Sevier Special Service District #1, Jones & DeMille Engineering, and Nielson Construction.
Address: 597 South SR 24
City, State, Zip: Salina, UT, 84654
Contact Person: Amanda Richard
Phone: (435) 286-4489
Site Name: Quitchupah Creek Road
Location: Sevier County

Activity and Category (Please check one activity and one category)

Activity

- Oil and Gas
- Minerals
- Coal X

Category

- Environmental improvement to an active mine site, drilling or recovery site, or field
- Outstanding results following applications of innovative environmental technology
- Outstanding final reclamation or site restoration
- Best practices X
- Other _____

Nominated By

Name: Canyon Fuel Company- Sufco Mine
Address: 597 South SR 24
City, State, Zip: Salina, UT, 84654
Phone: (435) 286-4407

Nomination Summary (attach additional sheets, photos, etc., as necessary)

Please see attached summary

Return no later than January 31, 2014 to: Earth Day Awards, Division of Oil, Gas and Mining, 1594 West North Temple, Suite 1210, P.O. Box 145801. Salt Lake City, Utah 84114-5801. Phone (801) 538-5324 Fax (801) 359-3940. Nominations may also be submitted electronically, email to jimspringer@utah.gov



SUFCON MINE QUITCHUPAH CREEK ROAD ACTIVITY: COAL • CATEGORY: BEST PRACTICES

The Quitchupah Creek Road project is a new, 10.5-mile-long transportation corridor connecting the Convulsion Canyon Road with State Route 10 in eastern Sevier County. It allows public access for natural resource recovery, property access, land management, agricultural, recreational uses and energy development. The principal utilization of the roadway will be tied to the transportation of coal from the Sufco Mine to market destinations in Emery and Carbon Counties. Currently, the Sufco Mine provides one-third of all coal produced within the State of Utah. Coal-fired power plants produce 81 percent of the electricity consumed in Utah.



The Quitchupah Creek Road project has taken over 18 years of multiple agency coordination with federal, state and local agencies. Since 1994, the Sevier Special Service District #1 (SSD) has worked with Jones & DeMille Engineering (J&DE) from the early conceptual and approval stages. Once funding was acquired, Nielson Construction served as contractor and construction began on the roadway in April of 2012.

Quitchupah Creek Road is a NEW roadway constructed through *rugged, remote and virgin territory*. Interesting facts about this unique corridor:

- ❖ 1,700,000 cubic yards of total earthwork, which includes 1,000,000 cubic yards of roadway excavation and 700,000 cubic yards of rock excavation
- ❖ 5 wildlife crossing structures
- ❖ 3 major cattle crossing structures
- ❖ 2 miles of cattle trail
- ❖ 12,300 feet of pipe culverts
- ❖ 100,000 tons of untreated base course
- ❖ 80,000 tons of asphalt (25% recycled asphalt pavement)
- ❖ 22,800 square feet of retaining walls

ENVIRONMENTAL CHARACTERISTICS

This project showcased how well aesthetics and minimal environmental impact met engineering, as identified below. The idea of “Context Sensitive Solutions” was implemented and evaluated throughout all aspects of the design and construction. These principles include:

- ♦ Address the transportation need
- ♦ Be an asset to the community
- ♦ Be compatible with the natural and built environment



**SUFCO MINE
QUITCHUPAH CREEK ROAD
ACTIVITY: COAL • CATEGORY: BEST PRACTICES**

Roadway Mitigation

To address the transportation need, the alignment and profile of the road needed to be constructed to limit the impact to the surrounding terrain as well as safe for the traveling public. The alignment was chosen to fit the surrounding features and blend in with the least amount of impact as possible. This was accomplished by following existing contours and features along the corridor so existing drainage and sensitive areas were not affected.

In areas where slopes would impact sensitive areas, retaining walls were constructed so as not to conflict with naturally occurring drainages and wetlands. When retaining walls were evaluated, a wire basket retaining wall with rock material was selected. This was designed so the wall would blend into the environment by using rock material from the surrounding area to match existing rock features.



Best Management Practices

By constructing a new transportation facility over virgin terrain in highly erodible soils, extra care had to be implemented to maintain sediment on-site. To achieve this end, several BMP's were employed. Not only were earthen berms, sediment logs and traps used, but the existing excavated rock was utilized. As construction commenced, the excavated rock was used in rip rap ditches as well as installed at the toe of constructed fills to help contain sediment run-off. One of the greatest additions was to the Water Hollow fill section. This section was 112 feet high and over 1000 feet long. This fill section was built out of Mancos shale which does not have a high success rate for re-vegetation due to its pH value. Because of this issue, excess top soil, at extra expense, was utilized from other areas of the project and placed on these critical fill slopes to provide for a higher success rate for seeding.

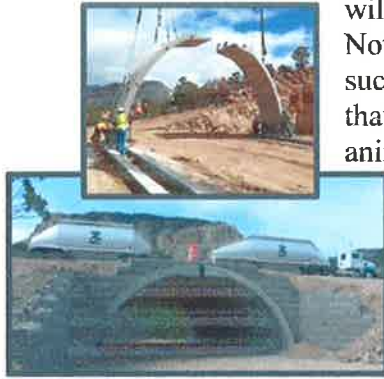




**SUFCO MINE
QUITCHUPAH CREEK ROAD
ACTIVITY: COAL • CATEGORY: BEST PRACTICES**

Wildlife Mitigation

One design concern from the trucking companies was to delineate the roadway with wildlife fencing to minimize the vehicle and animal collisions. In order not to disrupt the migration of wildlife almost 10% of the project budget was set aside just for the construction of five (5)



wildlife crossings. The crossing locations were critical for success. Not only the location, but the crossing type was important to the success of the crossings. These crossings were selected from products that would look as natural as possible to allow for ease of migration of animals. Selection of a precast concrete unit with the wire basket retaining walls mentioned earlier was a perfect fit. According to the Division of Wildlife Resources, the type of material selected and manner of construction would give the crossings as much success as possible. Also wildlife escape ramps were installed inside the fence to provide for an escape route for animals to get off the roadway and avoid vehicle and animal collisions.

Cattle Migration

Construction of cattle trails and three (3) crossings were created as to utilize the grazing along the corridor. This was a major asset to the community, since the cattle users were an integral part of the project. Accommodating their needs at times was as important as construction of the roadway. Several segments along this corridor opened up due to the construction of this project. In addition to these trails, cleaning of existing ponds filled in with sediment were dredged to allow for retention of rain water which would provide stock watering as well as minimize the impacts from erosion. Additional commitments also included the installation of holding tanks and watering troughs for cattle and wildlife.





**SUFCO MINE
QUITCHUPAH CREEK ROAD
ACTIVITY: COAL • CATEGORY: BEST PRACTICES**

Material Impacts

The end product needed to be compatible with the natural and built environment. An example of this compatibility was with the utilization of native and existing material in the pavement structure of the roadway. Instead of importing material to be used for a granular borrow section from another area, the existing material was utilized which resulted in less impact to other sites. Additionally, the constructed slopes blended into the existing area and looked more natural resulting in over 47,000 cubic yards of materials savings.

Moreover, there was approximately 80,000 tons of hot mix asphalt placed for a travel surface. This is significant in that 25% of the total material tonnage was recycled pavement. This equates to approximately 20,000 tons/10,000 cubic yards of material, and 1,280 tons of actual binder/oil saved. This project reflects how engineering and environmental considerations can work hand-in-hand in accomplishing the desired end product.

FUTURE VALUE TO ENGINEERING PROFESSION AND PERCEPTION BY THE PUBLIC

The term “partnering” took on a whole new meaning throughout this project. Several interests were at stake—public access, federal land management, grazing, wildlife, resource development, water quality, soil stability, and safety. Cattle trails and ponds were constructed to open up range land previously inaccessible for cattle. Wildlife crossings were installed. Geometric design guidelines were met. Permits were processed. All of these efforts demonstrated the importance of early communication and ongoing coordination to allow a project of this magnitude to move ahead and reach completion. The environment was protected by implementing the wildlife crossings, installing retaining walls and fencing and avoiding environmentally sensitive areas.

The value of “partnering” cannot be emphasized enough. All parties took ownership of the project and worked together to create win-win situations. The project’s interests were placed higher than any one party’s interests. This is evident by quality that is visibly seen by all who travel this corridor.



COMPLEXITY

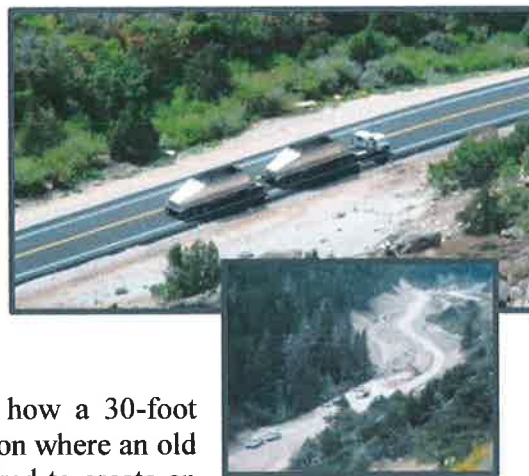
Quitichupah Creek Road was a very complex project due to the virgin, wild terrain through which it was constructed. This process spanned years to obtain approvals and complete all permits. The project also required the collaborative efforts and approvals of multiple agencies and organizations, including:



SUFCO MINE
QUITCHUPAH CREEK ROAD
ACTIVITY: COAL • CATEGORY: BEST PRACTICES

- ❖ Environmental Protection Agency
- ❖ Bureau of Land Management
- ❖ USDA Forest Service
- ❖ US Army Corps of Engineers
- ❖ Division of Natural Resources
- ❖ Division of Wildlife Resources
- ❖ Utah State Historic Preservation Office
- ❖ Utah Department of Environmental Quality
- ❖ Utah Division of Water Resources
- ❖ Native American Tribes
- ❖ Local cattlemen's associations
- ❖ Local landowners

Juggling these interests was challenging. Communication was key as all interested parties were kept updated as the project progressed. Problems and concerns were promptly resolved to avoid unnecessary delays and expenses.



Some within the engineering community wondered how a 30-foot roadway could squeeze into the bottom of a tight canyon where an old narrow road barely fit. Expertise and time were required to create an alignment and profile that would satisfy design criteria.

Social, Economic and Sustainable Development Considerations

The benefits realized by Sevier County by completion of the road are significant. This corridor benefits the citizens of the region by providing economic opportunities. Suferco Mine and truck companies produce and transport the coal to its markets. Energy development provides a strong tax base and mineral lease revenue for Sevier County and the State of Utah. Mineral lease revenue is returned to the locals via funding from the Community Impact Board and utilized for additional needed infrastructure to support energy production.

This project not only provides a new route, but it also provides reduction of coal trucking miles by approximately **3,000,000 miles per year**. Additionally, the roadway provides greater public access, enhanced safety, improved drainage capacity, improved roadway safety and improved access to natural resource and energy development. This project allows natural resources to be used to provide energy to the national power grid to sustain independence and economic growth.